

# PoE Outdoor™ Quick Install Guide



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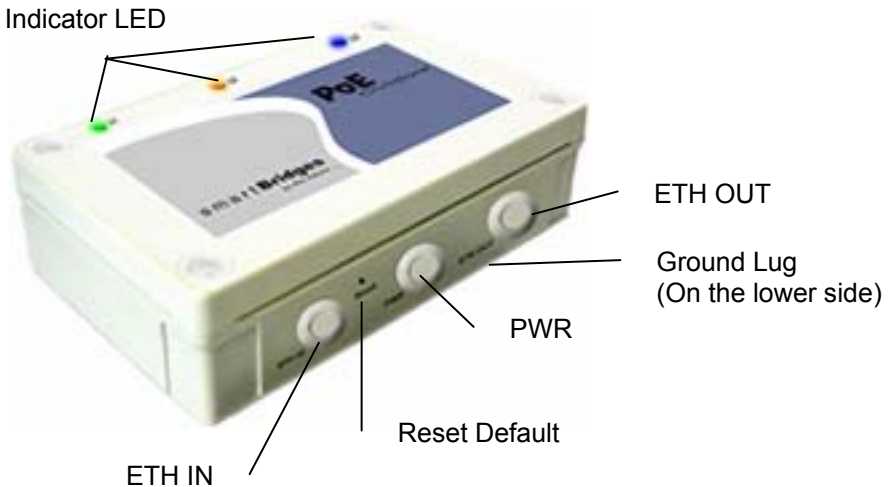
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## 1. PoE Outdoor™

PoE Outdoor™ is a unique Power over Ethernet Solution for outdoor wireless installations. The PoE Outdoor™ delivers required operating power and transmits data via the standard Category 5 Ethernet cable. It eliminates the need for a separate 110/220 volt AC cable to the radio and significantly reduces cabling and outlet requirements. The PoE Outdoor™ combines advanced protective and diagnostic features to bring unmatched convenience in wireless network deployment.



The PoE Outdoor™ is compatible to all IEEE 802.3af compliant equipment. Powered by an industry standard 48V AC/DC adaptor, the PoE Outdoor™ will provide sufficient power for devices connected up to 100m (328feet).

	<b>Features</b>	<b>Benefits</b>
Protection	Ethernet port protection and Special Grounding Facility	Special ground lug aids in direct and efficient grounding of device to user power ground, thus providing a ground drain path for electrostatic or lightning discharges (NEC 810.21 compliant)
	Two layered protection on Data I/O and Power lines	Protects from heavy surge currents and high voltage transients
	Short Circuit–Protection	Monitoring and protection ensures that power supply is switched off automatically while indicating the error status due to short circuit on the output ETH Out RJ45 jack.
	Lightning Arrestor	Lightning Protection / Discharge (NEC 810.20 compliant)
	Shielded RJ-45 Jacks	Enables use of STP CAT5/e cables for protection against electrostatic discharge
Advanced Diagnostics	Auto Sensing of Cable length	Dynamically adjusts power supply to compensate for voltage drop across the length of the cable
	Load Sensing	Checks for PoE capable device and power consumption
	Diagnosis of Low supply voltage	Switches off output power, indicating error in power supply; hence easy to troubleshoot
		Detects presence of moisture in cables
Carrier Class	Weather-proof	Durable, heat-resistant NEMA 4 water tight casing for reliable outdoor deployment
	Remote Reset Switch	Remotely restores the smartBridges radio to default settings

## 2. Package Contents



- PoE Outdoor™ unit
- AC Adapter
- Cable for AC adapter
- Wall Plate Unit
- Earthing Tag , M6 Nut
- RJ11 Plug
- Pole Mount : U Bolts , M6 Nuts , M6 Spring Washers , M6 Plain Washers
- Wall Plate : Wall Plugs , M4 Self Tap screws , M4 washers
- Reset Pin
- User Manual

### 3. Installing the PoE Outdoor™

The following steps should be carried out to install the PoE Outdoor™.

1. Grounding
2. Mounting: Wall or Pole mountable
3. Ethernet and Power Connection to the PoE Outdoor™, (Two ways to do this):
  - a. Using the wall plate to carry Power and Data via the Ethernet cable (RJ45).
  - b. Using the AC adapter directly to carry power via RJ11 (optional input) and the Ethernet cable to carry only data via RJ45.
4. LED Status after connecting RJ45 Output from PoE Outdoor™ to the smartBridges Device
5. Protection of the PoE Outdoor™ device

The details of these steps are in the next sub-sections.

#### 3.1 Grounding

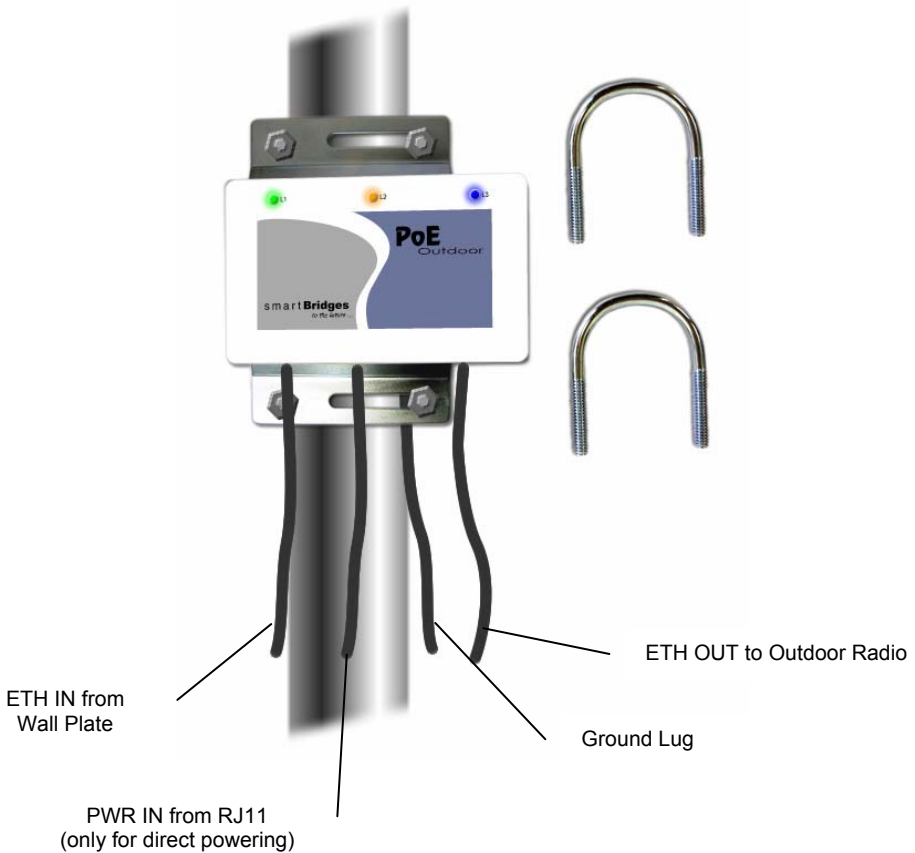
1. Crimp an AWG #10 earthing wire, to the Earth Tag provided.
2. Place this Earth Tag on the earthing stud at the bottom side of the PoE Outdoor™.
3. Fasten it with the M6 Nut provided tightly to the earth Tag of the PoE Outdoor™.
4. Connect the other end of the earth wire to the Power ground on the premises.

Note: Grounding has to be done before mounting the PoE Outdoor™ on the wall or pole.



### 3.2 Mounting

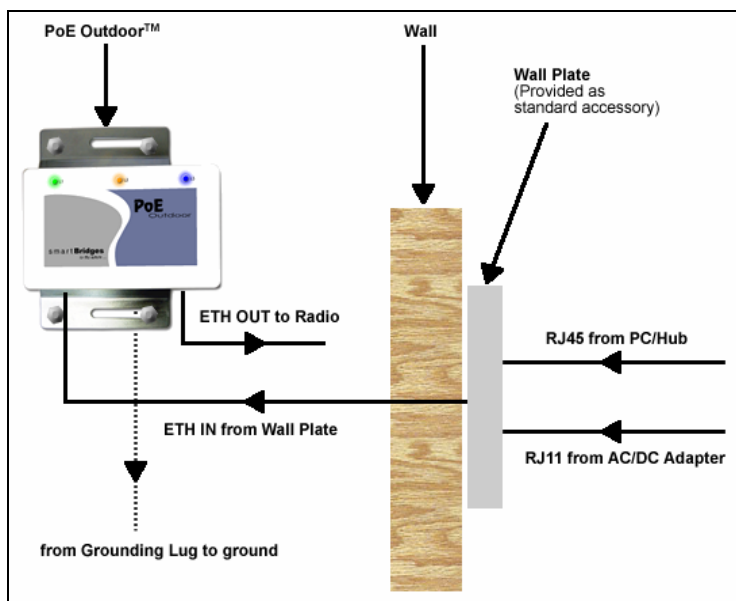
Mount the PoE Outdoor™ on the preferred wall or pole by using the supplied U-Bolts, clamps, wall plugs and screws (shown in the diagram below).



### 3.3 Ethernet and Power Connection

A convenient installation can be achieved by using a single Ethernet cable to run power and data to the PoE Outdoor™ unit. This is possible by using the wall plate. Without compromising power supply or signal quality, the total cable length can go up to 100meters (from the outdoor radio to the PoE Outdoor™ to the Network/PC hub or wall power source). It is recommended to keep the cable length from the Wall Plate to the PoE Outdoor™, as short and direct as possible. The length of the RJ11 cable and the Ethernet cable can be extended inside the premises, using extension couplers and cables of suitable length.

#### Installation Diagram with Wall Plate

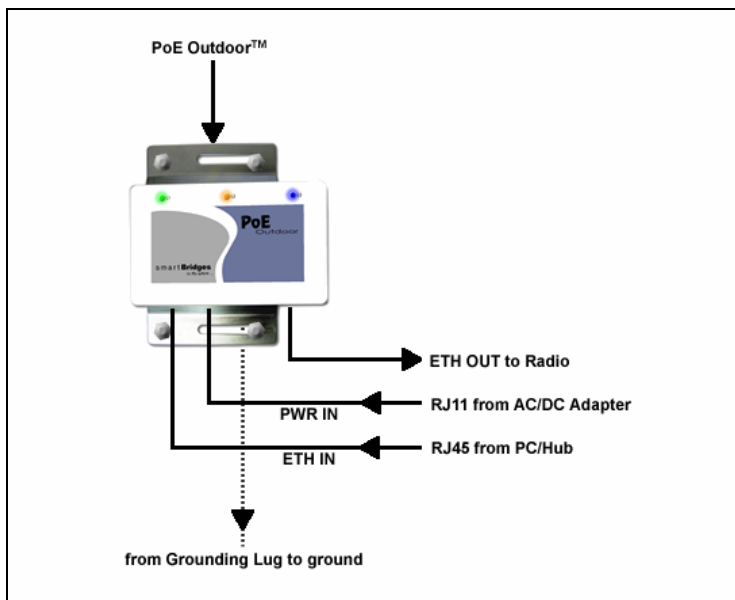


Steps for Ethernet and Power connection using the wall plate

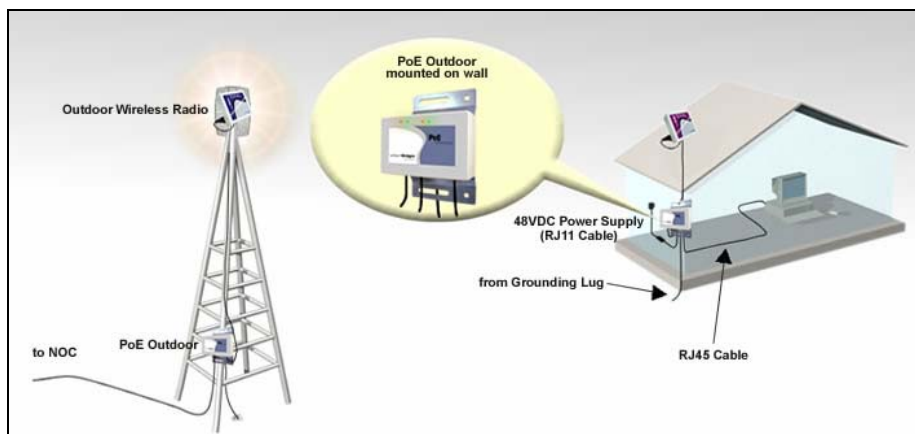
1. Connect the 48V AC adapter to the AC mains inlet
2. Connect the RJ11 cable of the AC adapter to the Wall Plate. Make sure the RJ11 connections are not reversed.

3. Using an RJ45 crimped CAT5 cable, connect the PC/Network to the Wall Plate
4. Connect an outdoor rated, shielded Ethernet cable from the RJ45 output of the Wall Plate (Refer to section 3.3.1 for installing the wall plate) to the ETH IN of the PoE Outdoor™ (refer to section 3.3.2 for connecting the Ethernet cables to the PoE Outdoor™).
5. Secure the outdoor rated Ethernet cable along the wall and outlet hole properly. Provide strain relief on this CAT5 cable.
6. From the ETH OUT jack on the PoE Outdoor™, connect an outdoor rated shielded CAT5 cable to the radio on the roof top or tower. Provide strain relief for this CAT5 cable.

### ***Installation Diagram without Wall Plate***



**Note:** Optionally, the RJ11 cable can be directly connected to the RJ11 input jack inside PoE Outdoor™ to power the device. In this case, Ethernet input cable to the PoE Outdoor™ carries only data. The output cable to the radio would carry both data and power.



### 3.3.1 Wall Plate Installation

The Wall Plate takes the RJ11 (for Power) and Ethernet IN (for Data) and provides Ethernet OUT with Power over the Ethernet cable. The Ethernet Out connector is inside the Wall Plate. The installation of Wall Plate is as follows.

1. Remove the two screws holding the front and back of the Wall Plate and check whether the RJ45 connector (ETH OUT) and Wall Plate PCB are proper.
2. The Knock out plate at the center of the back cabinet should be removed for taking the cable outside.
3. Connect the ETH IN and RJ11 in and check whether LED on the Wall Plate PCB glows.
4. Push the slide switch to straight or cross position depending upon whether the connection is to PC or network.
5. Connect the Ethernet output cable through the hole at the back of the Wall Plate.
6. Fix the Wall Plate to the wall with the screws provided inside the Wall Plate.

### **3.3.2 Ethernet or RJ11 Cable Connection to PoE Outdoor™**

Note: Please do not insert the Ethernet cable or RJ11 cable with the connector crimped into the ETH IN, ETH OUT or Power IN cable gland of the PoE Outdoor™.

1. Unscrew the four corner screws on the top side of the PoE Outdoor™ and remove the top cover.
2. Check whether the ETH IN, ETH OUT and Power IN cable glands are punctured. At the time of shipping, the cable glands should be in closed conditions. Use a small screwdriver to pierce a hole in the cable gland. Do not let screwdriver touch the PCB components.
3. Insert the uncrimped Ethernet cable from outside the PoE™ through the cable gland and into the device. Pull the cable for about 100 mm.
4. Strip both the outer sleeve of the Ethernet cable, and the internal twisted pairs of wires to 6 mm length.
5. Insert the wires into the RJ45 plug and crimp the plug.
6. Gently pull back the Ethernet Cable through the cable gland and insert the RJ45 plug into the socket on the PCB.
7. To avoid accidental pulling of the Ethernet Cable, use a cable tie over the Ethernet cable (on the inner side of the PoE Outdoor™).
8. After ETH IN and ETH OUT cables are connected, screw the top cover back. (In the case of using direct power, make sure the RJ11 DC In cable is connected)
9. Peel off the liner paper at the edges of the decorative label and stick the label edges on the top cover.

### 3.4 LEDs Status

Upon connecting the RJ45 Output from PoE Outdoor™ to the smartBridges Device, the statuses of the device is indicated with the following LED color codes:

- |                              |   |                                |
|------------------------------|---|--------------------------------|
| 1. Open Circuit              | : | Green Blinking                 |
| 2. Short Circuit             | : | Green, Amber and Blue Blinking |
| 3. smartBridges Classic mode | : | Solid Amber                    |
| 4. IEEE 802.3af mode         | : | Solid Blue                     |
| 5. Undefined mode            | : | Amber and Blue Blinking        |

### 3.5 Protection

#### Transient Voltage Suppressor (TVS)

Each of the four RJ45 data lines is clamped to 7.5V and the TVS provides protection against High Voltage transients. The RJ11 power lines are clamped to 60V. Grounding is done through the grounding lug at the back of the PoE Outdoor™. The TVS offers very quick response time to transient high voltages.

TVS Rating:

1. Peak Pulse Power Capability: 1500 W (with a 10/100 micro second waveform )
2. Repetition Rate (duty cycle): 0.01%

#### Gas Discharge Tube (GDT)

The GDT can handle large surges. The GDT triggers when exposed to long duration surges. It has a high current rating to protect against surges. Both the RJ45 data line and the RJ11 power lines are clamped to 90V with independent GDTs.

GDT Rating:

Discharge Current Capability: 2.5KA (8/20 micro second waveform;10 times)

## 4. Service and Support

This User Manual provides comprehensive information on Installation and Configuration of PoE Outdoor™. If, however, you still have problems or need further support, you can get in touch with us at:

<http://www.smartbridges.com>

You can also send your queries to [support@smartbridges.com](mailto:support@smartbridges.com)

Please register PoE Outdoor™ on our product registration page.

## 5. Frequently Asked Questions

### **Does the PoE Outdoor™ work with non-smartBridges radios?**

The PoE Outdoor™ will work with all smartBridges radios as well as IEEE 802.3af compliant non-smartBridges radios.

### **What is the power supply? Is it supplied along with the device?**

The PoE Outdoor™ works with a 48V power supply, as specified by the IEEE 802.3af standards. The power supply adaptor is currently supplied along with the device.

### **What is the maximum length to which the Ethernet cable can be pulled?**

From the outdoor radio to the PoE Outdoor™ and from the PoE Outdoor™ to the Hub/PC or the wall power source, the total cable length can go up to 100m without compromising power supply or signal quality.

### **Is it compliant with NEC standards for installations?**

The PoE Outdoor™ has Surge suppression capabilities (NEC 810.20 compliant).

### **Is there additional grounding protection?**

Yes. The special grounding lug on the PoE Outdoor™ can be connected to an earthwire for additional grounding. The PoE Outdoor™ grounding capability is NEC 810.21 compliant.

**What is the two-layered protection offered by the PoE Outdoor™?**

The PoE Outdoor™ offers advanced two layered protection on the data and power lines. Using GDTs and Transorbs, significant surge protection is built into the PoE Outdoor™.

**Does the PoE Outdoor™ work with existing smartBridges devices?**

Yes. The PoE Outdoor™ will work with all classic smartBridges radios. It has automatic output voltage adjustment for different cable lengths (for smartBridges classic devices, upto 100m max.)

**Is PoE Outdoor™ rated for outdoor installations?**

Yes. The PoE Outdoor™ has a watertight NEMA box enclosure. It has a wide operating temperature range of -40 Deg C to +60 Deg C (-40 F to 140 F) and 0 to 90% non-condensing humidity tolerance.



## Appendix A - Specifications

Product No.	SB2830
Ethernet Connector	RJ-45
AC/DC adaptor	48V, RJ-11 cable
PoEO DC out	ETH Out Pin 5 of RJ-45 output -ve ETH Out Pins 7, 8 of RJ-45 output +ve IEEE 802.3af compliant
Ethernet Data Rate	10/100 Mbps
Ethernet Data Cable	TIA/EIA-568, Category 5 cable UTP/STP (Maximum length of 100m end-to-end)
Number of Ethernet devices that can power be powered	1
Detection of Low DC input	Yes, with Output cut-off at low DC inputs
IEEE 802.3af signature detection	Yes
Input/Output status indication	Green/ Orange / Blue LEDs
Surge Suppression	Yes (NEC 810.20 compliant)
Grounding Lug	Yes (NEC 810.21 compliant)
Remote Reset for smartBridges radios	Yes
Operating Temperature	-40 Deg C to +60 Deg C (-40 F to 140 F)
Output voltage	48V (for IEEE802.3af signature compliant devices) Automatic output voltage adjustment for different cable lengths (for smartBridges classic devices, upto 100m max)
Relative Humidity	10 to 90% non-condensing
Dimensions	135mm x 80mm x 35mm
Unit Weight	450gm
Products Supported	All smartBridges Products and IEEE 802.3af compliant products
Mounting	Pole or Wall mounting via 2pc U-Bolts and clamps (supplied)
I/O Ports	Water-tight to NEMA 1, 4, 4X, 6, 12, 13; IP66 (EN60529) IK07 (EN30102)

## **Appendix B –Warranty, License and Copyrights**

### **Warranty Information**

smartBridges warrants product to be free of defects, and agrees to repair or replace the product that proves defective. PoE Outdoor™ is warranted for one year from date of purchase. This warranty does not cover accidents, misuse, neglect, unauthorized product modification, or acts of nature.

Please visit customer support area of smartBridges web site for making warranty claims. smartBridges may elect to exchange the product or refund the full purchase price of the unit.

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## **Notes**

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*to the future ...*